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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,801	08/27/2003	William L. Bowden	08935-282001 / M-5013	3936
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FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022				ALEJANDRO, RAYMOND
ART UNIT		PAPER NUMBER		
1745				

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/648,801	BOWDEN ET AL.	
	Examiner Raymond Alejandro	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 03 March 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 19-45 is/are pending in the application.
- 4a) Of the above claim(s) 41-45 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 19-40 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 27 August 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/25/05, 02/18/04</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group II and Species 1 (claims 19-40) in the reply filed on 03/03/06 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 1-18 and 46-60 have been also cancelled.

Information Disclosure Statement

3. The information disclosure statements (IDS) submitted on 03/25/05 and 02/18/04 were considered by the examiner.

Drawings

4. The drawings were received on 08/27/03. These drawings are acceptable.

Specification

5. The disclosure is objected to because of the following informalities: the status of all non-provision applications (*whether abandoned or patented and its patent #*) should be updated. For example, see page 6, line 7. Appropriate correction is required.

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

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7. The disclosure is objected to because of the following informalities: *in accordance with 35 USC 112, 1st paragraph:*

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

In view of that, it is noted that the specification as filed does not enable one skilled in the art to specifically make or use $(CF_x)_n$ because n is neither defined nor specified. Even though it might be understood that n refers to the number of monomer units, that definition is not present in the specification as filed as well as the specific number of monomer units (*i.e. n being equivalent to what*). Upon a careful review of the specification, it has been determined that the original disclosure would only support n to be 1 as no other n value has been found therein. Appropriate clarification or correction is required. *Applicant is reminded to avoid introduction of new matter into the disclosure if the specification as filed is amended.*

Claim Objections

8. Claim 39 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. *Claim 39 indirectly depends from claim 30 which also sets forth the same Li-Mn-O to CF ratio.*

Double Patenting

9. Claim 39 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 30. When two claims in an application are duplicates or else are so close in content that they both

cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 20-23 and 25-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. Claim 20 is indefinite as it depends on cancelled claim 18.

13. Claim 21 recites the limitation "*the lithiated manganese dioxide*" in line 1. There is insufficient antecedent basis for this limitation in the claim.

14. Claim 26 is indefinite as the specific molar amount "x" is not defined therein.

15. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by

"such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of

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the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). *In the present instance, claims 36-38 recites the broad recitation including different broader Li-Mn-O to CF ratios, and the claim also recites a Li-Mn-O to CF ratio which is the narrower statement of the range/limitation. It is noted that claims 36-38 depends from claim 30 which sets forth a narrower ratio (i.e. 20:80 to 80:20 by wt).*

16. Claims 33-35 recite the limitation "the low surface lithiated manganese dioxide" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. *For purposes of prosecution, claims 33-35 have been examined as depending from claim 32 which provides antecedent basis for such a limitation.*

Claim Rejections - 35 USC § 102

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

18. Claims 19-24, 26, 31-32 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by the European publication 1156544 (hereinafter referred to as "*the EP '544*").

The present application is directed to a primary battery wherein the disclosed inventive concept comprises the specific cathode active material.

As to claim 19:

The EP'544 discloses an electrochemical cell comprising first and second cathodes having each one first and second active materials; an anode of an alkali metal (CLAIM 1) such as lithium (CLAIM 12); and a separator separating respective anode and cathode (P.0008). The cathode comprises a first active material including CF_x (*the irreversible high capacity material*) (CLAIM 4) and a second active material comprising $LiMnO_2$ (*the reversible low capacity material*) (CLAIM 5).

As to claims 20-21:

The EP'544 discloses that it is known to use $LiMnO_2$ (CLAIM 5).

As to the method limitation, *viz. electrolytic or chemical manganese dioxide*, it is noted that a method limitation incorporated into a product claim does not patentably distinguish the product because what is given patentably consideration is the product itself and not the manner in which the product was made. Therefore, the patentability of a product is independent of how it was made.

As to claims 22-24, 26 and 32:

The EP'544 uses cathodes comprising a first active material including CF_x (*the irreversible high capacity material*) (CLAIM 4) and a second active material comprising $LiMnO_2$ (*the reversible low capacity material*) (CLAIM 5).

Accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed property or characteristic (i.e. the specific capacity), is necessarily present in the prior art material.

As to claim 31 and 35:

The EP'544 discloses the use of Li-salts dissolved in non-aqueous solvents (P. 0036-0038). *Accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed property or characteristic (i.e. the production of gas pressure), is necessarily present in the prior art material.*

Thus, the claims are anticipated.

19. Claims 19-26, 31-32 and 35 are rejected under 35 U.S.C. 102(a) as being anticipated by the European publication 1326295 (hereinafter referred to as "the EP '295").

As to claim 19:

The EP'295discloses an electrochemical cell comprising a cathode having first and second active materials; an anode of an alkali metal (CLAIM 1) such as lithium (P. 0037); and a separator (P.0005-0009). The cathode comprises a first active material including LiMnO₂ (*the reversible low capacity material*) (CLAIM 3); and a second active material including CF_x (*the irreversible high capacity material*) (CLAIM 3).

As to claims 20-21:

The EP'295 discloses that it is known to use LiMnO₂ (CLAIM 3).

As to the method limitation, *viz. electrolytic or chemical manganese dioxide*, it is noted that a method limitation incorporated into a product claim does not patentable distinguish the

product because what is given patentably consideration is the product itself and not the manner in which the product was made. Therefore, the patentability of a product is independent of how it was made.

As to claims 22-24, 26 and 32:

The EP'295 uses cathodes comprising a first active material including LiMnO₂ (*the reversible low capacity material*) (CLAIM 3); and a second active material including CF_x (*the irreversible high capacity material*) (CLAIM 3).

Accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed property or characteristic (i.e. the specific capacity), is necessarily present in the prior art material.

As to claim 25:

The EP'295 discloses that it is known to roll, spread or press the first and second cathode active materials together (P.0024). *Thus, they are together.*

As to claim 31 and 35:

The EP'295 discloses the use of Li-salts dissolved in non-aqueous solvents (CLAIM 7).
Accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed property or characteristic (i.e. the production of gas pressure), is necessarily present in the prior art material.

Thus, the claims are anticipated.

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20. Claims 19-26, 31-32 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Roy et al 2003/0134188.

As to claim 19:

Roy et al discloses an electrochemical cell comprising a cathode having first and second active materials and an anode of an alkali metal (CLAIM 1) such as lithium (CLAIM 8). The cathode comprises a first active material including LiMnO_2 (*the reversible low capacity material*) (CLAIM 4); and a second active material including CF_x (*the irreversible high capacity material*) (CLAIM 5).

As to claims 20-21:

Roy et al discloses that it is known to use LiMnO_2 (CLAIM 4).

As to the method limitation, *viz.* electrolytic or chemical manganese dioxide, it is noted that a method limitation incorporated into a product claim does not patentable distinguish the product because what is given patentably consideration is the product itself and not the manner in which the product was made. Therefore, the patentability of a product is independent of how it was made.

As to claims 22-24, 26 and 32:

Roy et al uses cathodes comprising a first active material including LiMnO_2 (*the reversible low capacity material*) (CLAIM 4); and a second active material including CF_x (*the irreversible high capacity material*) (CLAIM 5).

Accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed property or characteristic (i.e. the specific capacity), is necessarily present in the prior art material.

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As to claim 25:

Roy et al discloses that it is known to use together both first and second cathode active materials (P.0011-0012/FIGURES 1-2). *Thus, they are together.*

As to claim 31 and 35:

Roy et al discloses the use of Li-salts dissolved in non-aqueous solvents (CLAIMS 11-13). *Accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed property or characteristic (i.e. the production of gas pressure), is necessarily present in the prior art material.*

Thus, the claims are anticipated.

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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23. Claims 27-30 and 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over the European publication 1326295 (hereinafter referred to as "*the EP'295*") as applied to claim 23 above.

All the teachings of the EP'295 are incorporated herein by reference.

As to claim 40:

In addition, the EP'295 discloses the use of Li-salts dissolved in non-aqueous solvents (CLAIM 7).

However, the preceding reference does not expressly disclose the specific weight percent of the active materials.

As to claims 27-30 and 36-39:

The EP'295 further discloses using 91 % by weight of CF_x (P. 0023) because it has higher volumetric capacity and high energy density. The use of LiMnO₂ (CLAIM 3) for its higher rate capability (P. 0021).

In view of the above, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the specific weight percent of the active materials as instantly claimed because the EP'295 teaches that by using the specifically disclosed weight % thereof a cathode exhibiting higher energy density capable of delivering higher current pulses or higher energy within a short period of time is obtained. Furthermore, the specific cathode active material has a higher volumetric capacity; and in general they both form an electrochemical cell possessing sufficient energy density and discharge capacity. *Moreover, the EP'295 recognizes the specific cathode active material composition as a variable which achieves a recognized result, thus, the claimed range of specific materials results from the characterization as routine*

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experimentation of an optimum or workable range. Accordingly, the specific weight content is being construed as a result-effective variable. In re Aller 105 USPQ 233, 235; In re Hoeschele 160 USPQ 809, In re Antonie 195 USPQ 6 (MPEP 2144.05 II. Optimization of Ranges).

24. Claims 27-30 and 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over:
a) the European publication 1156544 (hereinafter referred to as “*the EP’544*”) and/or b) Roy et al 2003/0134188 as applied to claim 23 above, and further in view of the European publication 1326295 (hereinafter referred to as “*the EP’295*”).

The EP’544 and Roy et al are both applied, argued and incorporated herein for the reasons above.

As to claim 40:

With respect to the EP’544, the EP’544 discloses the use of Li-salts dissolved in non-aqueous solvents (0036-0038).

With respect to Roy et al, Roy et al discloses the use of Li-salts dissolved in non-aqueous solvents (CLAIMS 11-13).

However, the preceding references do not expressly disclose the specific weight percent of the active materials.

As to claims 27-30 and 36-39:

The EP’544 further discloses using 91 % by weight of CF_x (P. 0023) because it has higher volumetric capacity and high energy density. The use of LiMnO₂ (CLAIM 3) for its higher rate capability (P. 0021).

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In view of the above, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the specific weight percent of the active materials of the EP'295 in the battery of either the EP'544 and/or Roy et al as the EP'295 teaches that by using the specifically disclosed weight % thereof a cathode exhibiting higher energy density capable of delivering higher current pulses or higher energy within a short period of time is obtained. Furthermore, the specific cathode active material has a higher volumetric capacity; and in general they both form an electrochemical cell possessing sufficient energy density and discharge capacity. *Moreover, the EP'295 recognizes the specific cathode active material composition as a variable which achieves a recognized result, thus, the claimed range of specific materials results from the characterization as routine experimentation of an optimum or workable range. Accordingly, the specific weight content is being construed as a result-effective variable.* In re Aller 105 USPQ 233, 235; In re Hoeschele 160 USPQ 809, In re Antonie 195 USPQ 6 (MPEP 2144.05 II. Optimization of Ranges).

25. Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over: a) the European publication 1156544 (hereinafter referred to as "*the EP'544*"); and/or b) the European publication 1326295 (hereinafter referred to as "*the EP'295*"); and/or c) Roy et al 2003/0134188 as applied to claim 32 (See item 16: 112 rejection supra for more details) above, and further in view of Iltchev et al 6190800.

The EP'544 and/or the EP'295 and/or Roy et al are applied, argued and incorporated herein for the reasons above. However, the preceding prior art does not expressly disclose the lithiated manganese dioxide having the specific surface area.

Iltchev et al disclose lithiated manganese dioxide (TITLE) employed in primary lithium electrochemical cells (ABSTRACT) wherein its specific surface area is 16.5 (See TABLE 4).

In view of the above, it would have been obvious to a person possessing a level of ordinary skill in the art at the time the invention was made to use the lithiated manganese dioxide having the specific surface area of Iltchev et al in the electrochemical cells of either the EP'544 and/or the EP'295 and/or Roy et al because Iltchev et al teaches that such specific lithiated manganese dioxide, when used in an electrochemical cell, exhibits satisfactory initial operating voltages, and good average operating voltage and total discharge capacity. In general, it enhances voltage and discharge characteristics of the electrochemical cell.

As to the specific surface area being within the range of claim 34, it would have been obvious to a skilled artisan at the time the invention was made to make either the EP'544 and/or the EP'295 and/or Roy et al's lithiated manganese dioxide by having the claimed specific surface area because even though Iltchev et al does not overlap or lie inside the claimed specific surface area a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metal Corp. of America v. Banner* 227 USPQ 773 (Fed. Cir. 1985); *In re Woodruff* 16 USPQ 2d 1934 (Fed. Cir. 1990); *In re Aller* 105 USPQ 233 (CCPA 1955). Moreover, the normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine a satisfactory and optimum specific surface area.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Raymond Alejandro
Primary Examiner
Art Unit 1745



RAYMOND ALEJANDRO
PRIMARY EXAMINER